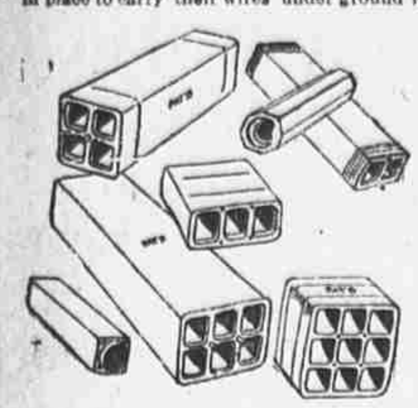
FOR UNDERGROUND WIRES.

WONDERFUL GROWTH OF THE MANUFACTURE OF CONDUITS.

A Business of Many Millions of Dollars, the Development of a Decade—Americans Teaching Europeans How to Use Them—Great Transformation of Cities.

Everybody in New York has seen recently along the streets piles of the ducts or conduits that the street railway companies are putting in place to carry their wires under ground for

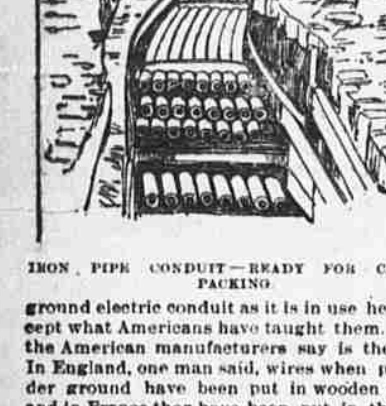


SOME STYLES OF CONDUITS.

the operation of their under-trolley systems of motive power. The manufacture of these conduits is one of the businesses that have had phenomenal growth in the United States within the last decade. With the increase prices have decreased and profits have augmented. The principal concerns engaged in the manufacture do millions of dollars of business annually, and are teaching foreign countries the uses of the conduits and how to put them down, and are selling their manufactures to those countries, although there are few patents protecting the processes of manufacture. Some of the goods, at least, anybody might make, it is said, so far as legal hindrances are concerned. Some manufacturers hold patents.

The makers of one style of duct, who began business ten years ago, are turning out now in one day as much of the piping as they made in the beginning in a year. From a payroll of $300 a week their outlay for labor has risen to $6,000 a week, although perfected machinery has increased the producing power of the workmen. They have at present fifteen of their employees from this country in England and Ireland teaching the Britishers how to lay and use the material they have bought of the firm. In the same time the price of the piping has fallen from 20 cents a foot to less than half that amount. Another form of conduit sells for less than that, but a greater cost of putting down makes competition about an even thing, and bids for contracts are frequently within a few hundred dollars of each other.

It will surprise many persons, who have read that in some things electrical, locomotives for instance, France has been ahead of the United States, to learn that the countries of Europe have known practically nothing of the under-

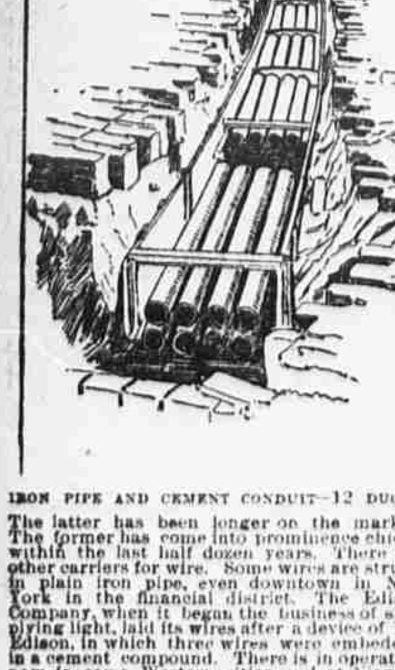


IRON PIPE CONDUIT—READY FOR CEMENT PACKING.

ground electric conduit as it is in use here except what Americans have taught them. Such the American manufacturers say is the case. In England, one man said, wires when put under ground have been put in wooden boxes, and in France they have been put in the sewers. The firm having workmen in England and Ireland has received a request to bid on some work in Moscow amounting to several hundred thousand dollars, and the prospects of the demand in France are such that the necessity of erecting a plant in that country is contemplated, the duties on such ware being high and subject to sudden change.

In English-speaking countries the firm has sought trade and obtained it, but the inquiries for the conduits come unsolicited from other countries. Japan at present is making inquiries here as to the ducts. Of at least one concern it may be said that, as their plant is now and for some time has been working to the limit of its capacity night and day, the indications are that for the immediate future the foreign buyer will have to come to the market rather than the market seek the buyer. The firm referred to as operating in Great Britain has sent skilled men to Manchester, Sheffield and other cities to break in and start at work gangs of local laborers.

The conduits in use are chiefly of two general patterns, the vitrified glazed tiling, similar to that used to drain farm or swamp lands, and the cement-lined pipe, both of which have become familiar sights in the streets of New York.



IRON PIPE AND CEMENT CONDUIT—12 DUCTS.

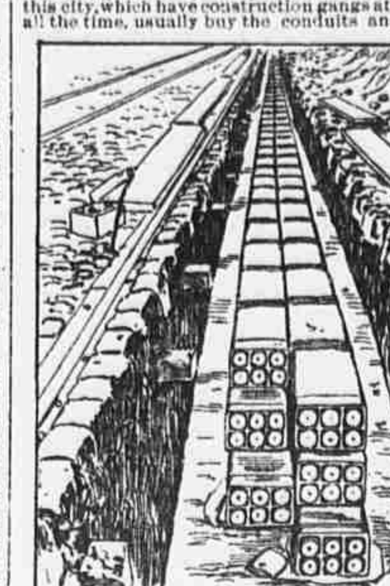
The latter has been longer on the market. The former has come into prominence chiefly within the last half dozen years. There are other carriers for wire. Some wires are strung in plain iron pipe, even downtown in New York in the financial district. The Edison Company, when it began the business of supplying light, laid its wires after a device of Mr. Edison, in which three wires were embedded in a cement compound. There is in operation now in some Western cities and at Niagara Falls a system of carrying bare wires in iron pipes, on a theory of utilizing the air as an insulator. But the two chief forms of the conduit for electric wires under ground are the vitrified tiling and the cement-lined pipe. The action of the Metropolitan Street Railway and the Third Avenue Railroad companies in selecting these two forms for their business in this city would seem to settle the question, as these two enterprises are by far the largest undertakings of the kind, and the work of equipping the roads in this city is of supreme importance. Having waited until now to install this method of traction in the metropolis, the companies would of necessity get the best that the market afforded, for their own protection. This work alone is of sufficient magnitude to have invited special inventions if present facilities were inadequate.

As a matter of fact, there have been next to no improvements in these conduits in the last half dozen years. Any improvements made have been in the matter of lessening the cost of manufacture, not in the character of the conduits themselves. What the electric companies require is a hole in the ground for their wires. How to make that hole permanent and keep out moisture is the problem before the manufacturers who would supply them with the conduits. To this end the iron and cement pipe and the baked clay have been found adequate. The iron pipe, cement lined, has an interior diameter of three inches and an outside diameter of about four and one-quarter inches. This is manufactured in lengths of six and eight feet, except where short pieces are required for curves, and when laid is made solid by being surrounded by four inches of concrete or hydraulic cement. As cement and concrete harden with age, it is contended that this forms eventually practically a stone viaduct as serviceable as though a part of the natural earth.

The vitrified tiling is made in 18-inch lengths, as a usual thing, although there are longer pieces made, and may be a single duct for one cable or several ducts combined in one piece. Permanence itself is declared to be the quality of this conduit, the imperishability of burnt clay being shown by the discovery of conduits of it which the Romans made, and the manufacturers of it making assurance doubly sure by laying it in a bed of concrete.

The manufacturers say that there is no measured strength of resistance for the conduits in the matter of liability to being crushed by the pavement weight; that the natural qualities of the materials used have been found sufficient. The only trouble has come, it is said, from laborers who, in excavating, have cut into the conduits. Repairs, however, are not difficult to make. Usually the companies making the conduits take the contracts for the whole work of installing them and digging up the streets and restoring the pavements to condition. This is largely because the light and power companies, and especially the telephone and telegraph companies, have not the forces of men for all of the work.

The big tramway companies like those in this city, which have construction gangs at work all the time, usually buy the conduits and lay

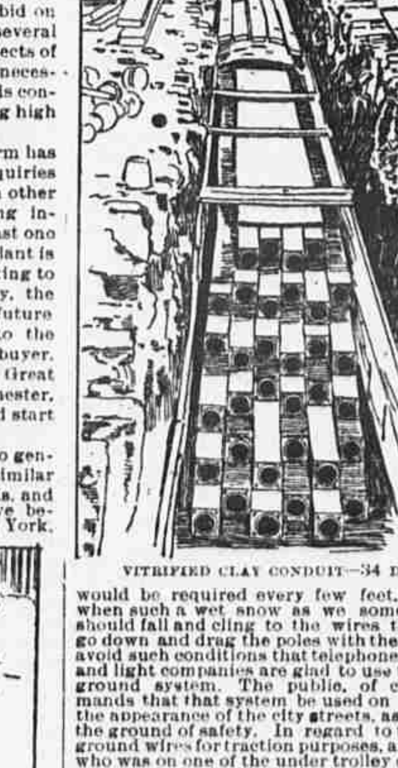


VITRIFIED CLAY CONDUIT UNDER CONSTRUCTION.

them themselves. The work of putting in the conduits commands all prices, owing to the variable nature of the soil through which they must go. It is said that a fair statement of the average cost a mile of laying the conduits would be $1,000. At the same time money has been made at 16 cents a foot and lost at 70 cents a foot, all on account of the character of the soil, the foreign obstructions, pipes, &c., through which the work must be carried on. Unexpected obstructions like those which Gen. Collis struck when he was laying the new water mains in Fifth avenue are sometimes encountered. In the face of such conditions as those at Canal street, now exposed, the cost is very high.

Light and power companies, telegraph and telephone and street railway companies in large cities want their wires under ground now, almost as much as the public want them to put them there. It saves them trouble and annoyance and expense, although the first cost of placing them there is large. All these companies and subway companies now look upon the underground conduit as the method for electric wire carrying of the future. When the first subway company got to work in this city, it put down something over a hundred conduits, or ducts, and it was laughed at for going to the expense of laying so many. Now it is fair to say the managers of the concern wish that they had several hundreds of them. Wherever companies now have occasion to get permission to construct a conduit, they usually put in as many ducts as they are able to, in anticipation of an enlarged business in the future. In one instance, where four ducts are needed, five times as many have been laid.

This is being done in cities all over the country. A general contractor said that if all the wires which now go up Broadway were above ground, iron poles loaded down with them



VITRIFIED CLAY CONDUIT—34 DUCTS.

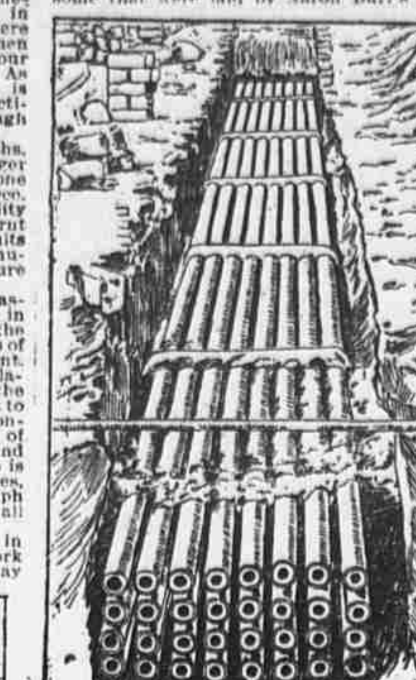
would be required every few feet, and that when such a wet snow as we sometimes get should fall and cling to the wires they would go down and drag the poles with them. It is to avoid such conditions that telephone, telegraph and light companies are glad to use the underground system. The public, of course, demands that that system be used on account of the appearance of the city streets, as well as on the ground of safety. In regard to the underground wires for traction purposes, an engineer who was on one of the under trolley cars which was caught in the blockade during the recent snowstorm said that that blockade was wholly due to inefficient operating management, not to any defect in the electric system. He said that the power was all right and sufficient and was conducted all right, but that the cars got blocked owing to some wagon jam, that not enough sweepers were out anyway, and that while that blockade was on the snow piled up and got the better of the line.

The telephone companies were the first to put their wires under ground. Then followed the light and power companies. The street car companies came last, in the nature of things, but that line seems now likely to be one of the biggest items of the conduit business in the future. The conduit manufacturers look for a constantly increasing business, just as the people controlling the conduits and subways expect a greater demand for them. The makers of the conduits have such confidence in the durability of their manufactures that they guarantee them, one company for fifteen years.

The accompanying illustrations show the two principal kinds of conduits and also the manner of laying them. The photographs are of work in different cities of the United

CONDUIT INCASED IN CEMENT BEFORE STREET IS RELAID.

States. Canada during the past year has put down a good many of the conduits. The illustrations show different patterns of the ducts, different methods of laying them, and the work in different stages and completed. Looking at these pictures, it is worth while to recall a former mode of carrying the wires which has not been mentioned—that was in wooden pump logs, such as are seen in days of the early settlement of a country and are occasionally dug up now in excavations in the older parts of New York. A few years ago some that were laid by Aaron Burr's water



IRON PIPE AND CEMENT CONDUIT—32 DUCTS.

company, so that the Manhattan Company might establish a bank, were exposed in Centre street. Pipes of this kind have been used for electric wires, and while they don't make bad conduits, modern business practicality isn't satisfied with anything so crude.

One of the advantages of the most approved modern conduits is a smooth interior surface. While it is not expected that the cables once drawn through these ducts will soon be taken out, yet it is desirable to have such a duct as will permit them to be withdrawn and new ones strung without danger of injury. One of the things to be looked out for in putting down the conduits is the matching of the pieces at the joints. A stubborn though small projection may tear the coating of a cable. While the conduits do insulate the wires, or are insulators as laid, that quality is not of the importance to the electric companies that people commonly believe. The companies for the most part insulate the wires in the cable. The rubber, which was at one time under the objection that moisture caused it to disintegrate, is now protected from moisture by a coating of lead, so that the cable looks like a lead pipe. The wetness, of course, tended to loss of electricity.

It is only a few years ago that a Mayor of New York chopped down the telegraph poles in the city streets, after the companies had been notified to take up the poles and place their wires under ground. How many lives have been saved, and how much property, at fires, since then, which would have been lost had the firemen been hindered in their work by the great number of wires which used to be carried on the poles nobody knows. It is not only the commercial companies that are affected by the change of system. The public service is largely concerned in the wires of the Police and Fire departments. How the tenants of the tall office buildings would like to see hundreds of wires strung past their windows one may guess. How New York, especially lower Broadway, where these buildings are many, would look with all the electric wires now used here strung on poles one would rather not guess. But it is not only in the large cities that a revolution has been effected. With New York, Boston, Chicago and St. Louis are New Orleans and Washington, Providence, Pittsburg, Buffalo, Baltimore, Lynn, Worcester, Springfield and too many more to mention in the matter of underground conduits. If there are still poles in the cities carrying wires, the conduit makers and contractors generally, and probably the electric companies themselves, believe it will not be a great while before the poles will have to go and conduits take their places.

Where the business will justify the expense, the companies for the most part are not likely to require urging to use conduits, and, aside from the business standpoint, there is to be reckoned with the strong popular demand that overhead wires in cities should go. Even in some of the smaller communities there is a feeling that the people are entitled to some of the benefits enjoyed by those of the big cities, and as the new electric companies come to operate in these places and the underground conduits become more familiar to visitors to the larger cities, there is a likelihood that the new companies will be required to use conduits.

The business of making and laying the conduits, already so large, is increasing every month, according to men engaged in it. The development of the street-car system and increased earnings of the companies keep adding new impetus to it. It is said that the action of the Government a few years ago in declaring that the street cars of Washington should be propelled by some power other than horses had something to do with the development of the conduit business by inducing experiments in electric traction by other than an overhead trolley system. The conduits are made now in various parts of the country, including this State, New Jersey and Ohio, where some of the largest of the factories are.

A DEAD HEAT.

Decision of a Referee in a Horse Race That Roiled the French Canadian Narrator.

"Las' wintaire we have race on de hice. I have horse dat trots ver' fas', but I not be go to dem race yet. One day I go in de Hotel Chien Blanc an' I tek tree four wiskee *blanc*. Dere be some peop' dere an' one of dem say:

"'I not see you h'at de race yet, Napoleon.'

"Anoder he say: 'How dat? You not come to de race no more, Napoleon?'

"Den Felix Leblanc say, '*Mon dieu!* dey be too fas', dem race. Napoleon not got fas' horse no more.'

"'Wat dat?' I say. 'I got no fas' horse? *Sacré!* I got de mos' fas' horse on dat hice.'

"Den Felix say, 'Napoleon, you drink too much wiskee *blanc*. It go your 'ead. You not got so fas' horse dan me.'

"'Well,' I say, 'mebbe so; *mais*, I bet fift' dollar my horse more fas' dan yours.'

"'I tek dat bet,' Felix say. 'Who we place dat money wit'?'

"Jacques Bernard, dat keep de Hotel Chien Blanc, say, 'François Savard here be ver' good man. You place dat money wit' him.'

"We both say, 'Sure he good man. He be all right.'

"We give de hund' dollar to François Savard and we fix for dat race be trot Sat'day. Sat'day I tek my horse on de hice an' Felix tek his horse on de hice. Dere be plenty peop' dere. All my frien' dey come; all Felix frien' dey come; everybody dat hear 'bout dat beeg race he come, too. Dey mek plenty talk; dey mek plenty bet. Some say I win, sure; some say Felix win, sure; an' every one be ver' much h'excite' 'bout dat beeg race.

"By 'n' by we mek for start. We score for while, den de jooge say 'Go!' an' de peop' dey hall shout 'Dey's hoff!' We come to de quartaire an' we be neck an' neck. Den my horse he go lek de win'; *mais* Felix horse he go lek de win', too. We come to de 'alf an' we be neck an' neck. Den my horse he fly; *mais* Felix horse he fly, too; an' den we go ver' fas'. We go lek dat. Den Felix be leetle bit 'head. I be hon de hinside an' Felix be hon de houtside. Den de hice mek clack! clack! and Felix horse be hin de wataire. I finish dat race.

"All de peop' run for try save Felix horse, but Felix horse be drown. I go to Felix an' I say:

"'I be ver' sorry Felix for your horse be drown, but I win dat race. I tek dat hund' dollar.'

"'*Sacré!*' he say; 'you not win dat race; dat hund' dollar not yours. Dat not my fault my horse be drown.'

"'*Baptême!*' I say, 'dat not my fault, too!'

"Felix talk an' I talk an' all our frien' talk, an' den I say: 'Felix, we leave all dat François Savard. S'pose he say I win, dat be c'rect. S'pose he say you win, dat be c'rect, too.'

"'*Bien!*' he say; 'we leave dat François Savard. Wat he say be good.'

"We fin' François Savard an' I say, 'M'sieu Savard, I win dat race an' I want dat hund' dollar!'

"But Felix say, 'He not win dat race an' you not be pay Napoleon dat hund' dollar.'

"Den we talk some more an' all our frien' dey talk some more, too. Den I say, 'M'sieu Savard, we 'gree for lef' all dat for you. Wat you say be c'rect.'

"François Savard say, 'How dat, Felix, dat you say Napoleon not win de race? He come in firs'. He mus' win de race.'

"Felix say, 'Well, my horse be 'head w'en de hice she brek an' my horse be drown. Dat not my fault de hice brek.'

"François Savard say, 'Sure! dat not be your fault. Felix an' Napoleon you both 'gree for lef' dat to me. Wat I say be c'rect?'

"'*Oui*,' I say, 'dat be c'rect wat you say.'

"Felix say '*Oui!*' dat be c'rect.'

"François Savard say, 'Felix horse be drown. Den dat race is dead heat. I kep' dat money till she be trot ovaire 'gain.'

"*Sacré cochon!* Damn scoundrel!"

VERMONT'S DEAD SENATOR.

MR. MORRILL'S REMARKABLE RECORD IN CONGRESS.

Honors Won Early as a Representative and Held Long as a Senator—High Esteem in Which His Colleagues Held Him—A Picture of an Old-Time Statesman.

WASHINGTON, Dec. 31.—The late Justin Smith Morrill, the Father of the Senate, entered Congress on Dec. 3, 1855, and served twelve years in the House of Representatives and thirty-one years in the Senate, both continuously. No man before him ever enjoyed such honors. Thomas H. Benton of Missouri served in the Senate for thirty years continuously, but the distinguished Vermonter surpassed him. Mr. Morrill's term would not have expired until March 4, 1903. He would then have been a member of Congress for more than forty-seven consecutive years, with a record of thirty-six years in the Senate.

The man whose record in Congress most nearly approaches Mr. Morrill's is John Sherman, who came to Washington at the opening of the Thirty-fourth Congress as a member of the House of Representatives and was sworn in on the same day as Mr. Morrill. Mr. Sherman was promoted to the Senate in 1861, six years before Mr. Morrill, and remained there until 1877, when he resigned to become Secretary of the Treasury in the Cabinet of R. B. Hayes. Returning to the Senate in 1881, he served sixteen years more. His service in the Senate, therefore, covered a period of thirty-two years, one year more than Mr. Morrill's, but the service was not continuous, so that the Green Mountain statesman was entitled to the distinction of being called the Father of the Senate even while the Ohio man was yet his colleague.

There is only one man in Congress to-day who was there when Mr. Morrill became a member in 1855. That is Galusha A. Grow of Pennsylvania, who took the oath in 1851. Senator Morrill was 45 years of age when he came to Congress, and Mr. Grow but 28. The Pennsylvanian is himself a remarkable specimen of manly vigor. Tall, straight as an arrow, vigorous of body and alert of mind, he can even now wake the echoes of the chamber with his eloquence as effectively as many a young member just out of college. Mr. Grow will be 76 in August next. He was Speaker of the House of Representatives in 1861, and soon afterward retired to private life. He was almost forgotten by public men when, in 1894, he bobbed up again as a Congressman-at-Large from the Keystone State, and he still remains, an imposing example of a man old in years, but young in body and in mind.

Franklin Pierce was President when Mr. Morrill first came to Congress. Nearly all the men who were contemporaneous with him in the early days of his public career are dead and gone, and many of the issues for which they wrangled and fought and in advocacy of which parties came into power or went out are now half forgotten. The agitation over the question of the extension of slavery to the Territories was at its height in 1855, and one of Mr. Morrill's first acts in Congress was to deliver a speech in the House of Representatives in support of a report, also made by him, in opposition to the admission of Kansas as a pro-slavery State. Another was to speak in opposition to the tariff bill pending in 1857, because, in his opinion, it failed properly to care for the agricultural interests. The first anti-polygamy bill to pass the House of Representatives was presented by him. He also introduced the first bill to grant public lands to agricultural, scientific, and industrial colleges, a bill that was vetoed by President Buchanan, but passed by Congress in 1862.

It was in 1861 that Mr. Morrill came into national prominence through the Morrill tariff, a measure prepared largely by his own labors. He was the leading working member of the Committee on Ways and Means and Chairman of the sub-committee on Tariff and Taxation. The Chairman of the committee was Thad Stevens of Pennsylvania, who assigned all revenue matters to Mr. Morrill. That tariff act of 1861 stood for years as a model of practical wisdom, and will always testify to the ability and industry of the man most directly entitled to the credit of its authorship. The internal revenue tax system of 1862 was also largely formulated by him.

It was in 1867 that Mr. Morrill was promoted to a seat in the upper house of Congress. He took front rank there at once as an authority upon questions relating to the finances, tariff and taxation. He became a member of the Committee on Finance almost immediately because of his record in the House of Representatives, and after a few years was made its Chairman, a place he still held up to the time of his death, notwithstanding that a majority of the committee members were free-silver men. With the exception of the two brief periods when the Democrats had control of the committee, Mr. Morrill was its Chairman from his original appointment. In the first of these breaks in his continuity of service the late Thomas F. Bayard of Delaware succeeded him as Chairman, and in the second the late Daniel W. Voorhees of Indiana.

In 1883 an incident in connection with the Chairmanship of this important committee occurred in which Mr. Morrill figured prominently, as did that other financial and tariff authority, John Sherman. In the Senate seniority of service controls the matter of promotion on committees, and Senatorial tradition admits of no deviation from the rule. The last man to be appointed on a committee is placed at the foot of the membership list, and when he reaches the top he becomes Chairman, whether fitted for the place or not. The law of seniority of service is unchangeable, and nothing can happen in the Senate similar to the episode in the House of Representatives at the opening of the Fifty-fourth Congress, when Speaker Reed set aside Sereno E. Payne of New York, who was the ranking Republican member of the Committee on Ways and Means, and gave the Chairmanship to Nelson Dingley, Jr., who had not been a member of the committee. In 1881 John Sherman, who was Chairman of the Finance Committee in 1877 when he resigned from the Senate to become Secretary of the Treasury, came back to the Senate as the successor of Allen Granberry Thurman. He was assigned to a place on the Finance Committee, but his name was at the bottom instead of at the top of the list. When in 1883 the Republicans gained political control of the Senate, which they had lost in 1879, Mr. Sherman put in a demand for his old place as Chairman of the Committee on Finance. Mr. Morrill, who had been Chairman for two years in Mr. Sherman's absence and whose name led the list of Republican members, made a counter demand, based on seniority, and won hands down.

In all the stirring scenes of the forty-three years that he served in Congress Mr. Morrill was an active, intelligent and loyal participant. He was the friend and confidant of Lincoln, as he was the friend and adviser of McKinley. As a Republican he was a stalwart of the stalwarts, but this did not prevent him from having the most friendly personal relations with the prominent men of all political parties. Johnson and Cleveland were as ready to give him their friendship and confidence as Garfield, Arthur and Hayes. Liberty to all men, protection to American interests and a sound and stable currency were the Vermont statesman's ever-present mottoes in his political career. To attain these objects he labored constantly during his long public life.

Most men at 88 are willing to let go and spend the remainder of their days in absolute repose; but to Mr. Morrill the prospect of living only for himself had no attractions. He began to work when he was a boy, and he kept on working to the end. His only child, a son, who cast his first vote in the early eighties, is yet younger now than he was when he first entered public life in 1855, for he was 45 when he came to Congress; but before then he had labored many years. He was a farmer when first elected, had been a merchant before that, and at 15 was a clerk in the general store of the village of Strafford. His education consisted solely of the schooling he obtained in that little town, but while a clerk he read Blackstone, and in after years pursued a course of study of the standard and classical authors. He was all his life an omnivorous reader. His mind was stored with information, and the long series of speeches which he made in the House and Senate on public questions would form a cyclopædia of knowledge. His literary labors were confined almost entirely to the preparation of bills and reports to be submitted to Congress and to the preparation of speeches to be delivered there. He found time during his first year in the House to publish a volume which is not much known, although a second edition was published in 1887. "Self-Consciousness of Noted Persons" is a collection of illustrations of the self-esteem with which many noted men and women regarded themselves. The anecdotes had come under his personal notice or were gathered in his extensive reading. Recently he published in a magazine a series of letters, comprising correspondence with Horace Greeley and other prominent Republican leaders of the past.

Mr. Morrill was a fine specimen of the old-time statesman, tall and spare, his shoulders at last stooping with the weight of years, but his hair as luxuriant as when he was in his prime, his eye clear and his step firm but slow. Certainly the Senate and the public will miss him when he is gone. They will miss his good-natured raillery of his political opponents and his satirical references to the political demagogues who have of late years sprung up with "obnoxious nostrums," as he called them, for all the ills that afflict the body politic; they will miss his genial face and courtly, gentle manner, and they will testify to his exemplary public and private life, not only in the stilted and perfunctory eulogies which Congressional custom heaps upon the memory of the dead who die in service, but also in the privacy of the cloakroom.

He was devoted to his home in Washington, where he surrounded himself with books and pictures and the comforts of modern life, and where he spent many happy years; but he loved still more the little Vermont village where he lived all that part of his eighty-eight years of life not spent in Washington, and where, to use his own words, "the stars, the planets and the moon seem to shine more brightly than elsewhere."

THE GIANT AS A BILL STICKER.

The Old Circus Man Tells How the Greatest of All Giants Used to Help in Billing a Town

"I don't know of any little thing the great giant used to do," said the old circus man, "that stirred up more interest than his hanging out the billboards. We had a lot of billboards, about six by four, made especially for this use, and the giant used to hang 'em up around in conspicuous places in the towns we visited. After we'd got through showing at night in a town the giant would just go ahead to this next town and put up the boards there between midnight and daybreak. These towns, like most towns or cities, for that matter, were apt to be pretty quiet after midnight, and we used to put up the boards then, so people would be surprised by 'em when they got around in the morning.

"In many of the places that we used to visit there would be a public square or green, in the centre of the town, with stores around more or less of it, and there was almost certain to be a church or two here, too, and here's where the giant would come out powerful and strong. If there was a church there, the giant never failed to hang a board on the steeple. I don't mean on the weather vane. He couldn't quite reach that, maybe, but on the base of it, above the roof. They were likely to be on these old-fashioned, slender, pointed spires, running up from a square base, and he'd set the board on top of that base, leaning up against a spire.

"Then he was pretty sure to put one or two boards in trees, but where we came out strongest was in setting 'em on the roofs of the buildings. No fifteen or twenty story buildings, of course, in those days, and especially none in those places; just good old-fashioned buildings two or three stories high, and often with sloping roofs, and with great, big, square chimneys rising above the ridge pole, and the giant used to stand boards up on these roofs. Sometimes he'd prop 'em up in the eavestrough of a building; sometimes he'd lean 'em up against some other building that rose higher, but what pleased him most was to stand a billboard up on a roof leaning against a chimney.

"Well, in the morning, when the people begun to get around they'd see those billboards. The show would be in town by that time, and settling down in the circus lot on the outskirts, and the first thing you know the Mayor of the town, or some committee, or somebody from the church would be out to see the old man and protest against those billboards. As a matter of fact, it used to startle 'em a little bit to wake up and see the boards.

"The old man was an entertaining talker and a good, solid citizen generally, and he never failed to make a good impression on this official or committee. He would explain that he couldn't personally always look after the setting up of the billboards, as he would like to do, but that it was not intended to offend anybody with them, and most certainly not intended to offend the church, and he'd send at once and have those boards taken off the churches and the liberty pole and if the boards were any of them disturbing he would have them all removed.

"We had a wagon built especially for the purpose that we used in taking in the boards. It had axles about twice the usual length, giving it a very broad wheel base, so that it wouldn't upset, and then we had a tall frame work built up on that; it was very much like the sort of an outfit they have nowadays to run along the line to enable men to get at the wires of an overhead trolley line, only ours had this framework built up much higher. When that outfit turned into the public square people used to think that somebody was going to climb out from the top of it in some way to reach the billboards, but in about a minute they would see the great giant following, and pretty soon they'd begin to realize what it all meant. They'd heard of the giant, of course, but they'd never believed what they'd heard of him. They did now, however, when they actually saw him.

"The first thing he did was to walk up to the steeple and take down that board and hand it down to a man standing on top of the frame tower built up from the big wagon; that man would slide it down a frame chute, built for the purpose, to the floor of the wagon. Then they'd drive as near as they could get to the liberty pole and the giant would take down the board from there and hand that down to the man on the tower.

"By this time, of course, the whole town was looking on. Venturesome small boys who hadn't learned what awe was, seized the opportunity when the giant was standing still to run between his legs; grown-up people stood back and looked up at him in amazement and everybody followed when he moved. From the liberty pole he'd go to a building on some corner for a starting point and take, maybe, a board down from the eaves of the house or maybe one hanging against the side wall. Then he'd move on to the next house and take down a board from a chimney; but usually after he had taken in two or three boards from buildings around the square the people were willing to have 'em stay, and they'd say so to the old man and he'd call the giant off.

"It used to stir the people up tremendous. The whole country used to come to the show. But there came a time when it didn't draw so well; people had heard of it and read of it so much that it seemed kind o' familiar even to those who had never seen it before. Even the best things get kind o' stale after a while, and then we had to think up something new."

UP AGAINST A LIGHTHOUSE.

A Queer Mishap to a British Steamship in the Suez Canal.

From the Philadelphia Times.

Colliding head on with a lighthouse while passing through the Suez Canal was a thrilling experience in the voyage of the British steamer Strathard, which, under Capt. McIntyre, arrived in port on Saturday afternoon. The peculiar accident occurred on Nov. 12 at 5 o'clock in the morning. The Strathard was at the time entering historic waters, the famed Bitter Lakes, celebrated in Biblical lore as the point where the Israelites are supposed to have turned to the south to cross the Red Sea in their flight from Egypt. This sheet of water is about sixteen miles from the southern entrance of the canal, where difficult navigation must be expected if the great ditch is to be passed through successfully. Capt. McIntyre tells the story as follows:

"Great care must be observed in passing through the canal to prevent injury to its banks. The sides are palisaded and a large amount of money is spent yearly in keeping back the sand, which continually encroaches through the barriers. Of course, pilotage is compulsory, and it is largely in the hands of Frenchmen. They are capable men and know every foot of the canal, which makes our striking the lighthouse something singular.

"According to the canal regulations the speed of vessels passing through it must be reduced to eight miles an hour or even less, if it is possible to keep steerage way on the vessel. This rule is necessary in order that the wash may not affect the sides. Consequently, when we came to the canal our speed was reduced to the minimum.

"Bitter Lakes were entered just before sunrise, and we bore two points east-northeast of its light. And now comes a peculiar phase of the story. You have heard of the mirage of the desert, I suppose. It is to this phenomenon that I attribute the disaster which followed shortly after we sighted the light.

"The light appeared at least fifteen miles off. Words are hard to describe the effect produced by that twinkling little beacon seemingly almost under the horizon, although common sense told us that the canal at this point is only about five miles wide at the most.

"'How far away is that light?' I asked the pilot.

"'About three miles,' was the reply.

"Hardly had the words left his mouth when the man on watch struck three bells. The sudden tone of the bell, peculiarly sonorous, instantly caused a most remarkable dissipation of the curious mirage. With the speed of lightning the beacon apparently rushed toward us until it appeared at its true distance, only 200 feet ahead, and gleaming ominously from the top of its high, white stone tower.

"An instant more and the inevitable smash occurred. It is true that we were hardly more than creeping along, yet we ran against the structure with a force which shook the steamer from end to end and played havoc with the obstruction in our path. No need to say that there was a wild stampede from the lighthouse, but nobody was hurt. We grounded and were finally pulled off leaking badly, arriving at Port Said with five feet of water in the forepeak. There the leak was stopped and we were pumped out, resuming our voyage on Nov. 15."

Capt. McIntyre's story is similar to many others told by Captains who are familiar with the navigation of the Suez Canal. The canal pilots are greatly handicapped by the refraction of the atmosphere, which is seemingly identified with that country, and their work is rendered even more difficult by having to make allowance for the real and apparent distances of objects. This is the first accident, however, in many years in which a vessel has been damaged by reason of these curious phenome

BERNHARDT ON VESUVIUS.

Reflections of a Globe Trotter Who Hears of Her Footprints in the Lava.

The globe trotter has just returned from Vesuvius himself, where he heard that Sarah Bernhardt had followed on foot the path up which a donkey had carried him. He was pained but not surprised to learn that the great actress, having ventured too near the crater, had had her eyebrows singed and suffered the loss of a curl.

"I don't wonder that Sarah was scorched," he remarked. "The stuff that is boiling down there in the crater is just about nine times as hot as boiling water. It has been shown to have a temperature of 1,800° Fahrenheit, and nobody can say that it doesn't develop much greater heat. Sarah would certainly have been desiccated if she had peered over the edge of that crater much longer.

"She's no ordinary sort of woman or she would have done what ninety-nine in a hundred do when the guide warns them to go no further. She says that when she was forty or fifty steps from the crater edge the guide told her to stop. He tells all tourists the same thing and scares them stiff with terrible stories of what has happened to rash persons who ventured too near the crater. He begins with the sad tale of the Brazilian boy who was bending over the edge of the crater, one day in 1896, trying to see bottom, when he lost his balance and fell in; then he dishes up the story of the poor Frenchman who was driven mad by the awesome surroundings and jumped into the cavity; and if these incidents don't suffice to make the visitor wish he was back in Naples or New York he has other horrors to relate.

"But Sarah certainly risked a good deal more than her eyebrows when she looked over into that crater. Vesuvius is usually very well behaved, but she's not to be trusted. Sometimes she gives ample warning that there's going to be an eruption, and sometimes she utterly fails to give anybody a minute's time to get out of the neighborhood. Suppose the old mountain had begun to fire thirty or forty ton rocks into the air while Sarah was looking over the edge. It would have been the greatest tragedy she ever took part in, and she would have been a part of the eruption herself.

"Sarah seems to have had no thought of danger or discomfort. She was simply inspired by the wonderful surroundings. With curl consumed and smoking eyebrows, she says: 'I felt in my innermost being the grandeur of the earth and the littleness of man when face to face with the forces of nature.' That isn't the way the top of Vesuvius impresses most people, and it shows Bernhardt rising superior to even the forces of nature. In the first place, the ordinary sightseer doesn't think but positively knows that it smells horribly up there near the crater. The mountain always smokes, and it is the most evil-smelling smoke imaginable. Sulphur fumes choke you and very likely you are enveloped in a bitter, stinging cloud till some kindly breeze drives it away. You are like a woman on her first sea voyage, who imagines that a good, fair wind is a howling tempest. The guide, after scaring you half to death with his yarns, reassures you with the remark that the volcano is perfectly quiescent now. You don't believe him, for you suddenly hear an unearthly bellow, followed by a long, rumbling roar, and you expect that the mountain, wild with internal agony, is going to tear things to pieces in just about a minute. Your knees are trembling with excitement. They had been trembling earlier with fatigue, for even with the aid of stumbling ponies over the jagged sweep of lava, and the railroad ride part of the way, the ascent is a warm and tiresome affair. And while you are gasping for breath, wiping your smarting eyes and trying in vain to see something, the guide faces you about and starts you down the hill. You have 'done' Vesuvius, and you won't think it necessary to repeat the feat.

"But perhaps I'll go up again. Sarah says that her feet left prints in the lava, and if the tracks solidify they may give Vesuvius a new phase of interest till she covers them up with a fresh lava flow. It's safe to say the actress didn't suffer from cold feet while making footprints in the lava. I walked over lava myself that was as hot as a kitchen stove and gave a blistering heat to the air, and I didn't leave any footprints either. Bernhardt may if she likes it, but I'd rather be excused."

The Danilewsky Flying Machine.

From the Scientific American.

We have been favored by Dr. K. I. Danilewsky of Charkov, Russia, with some photographs of his dirigible flying machine and notes of various experiments.

This balloon-flying machine is based on the hypothesis that if a man's strength, in proportion to his weight, is not sufficient to raise him in the air, he can raise himself if part of his weight is subtracted. By the use of a balloon filled with hydrogen the weight of the man is eliminated from the problem and he can use all his efforts to propel and steer the balloon which supports him. Our engravings, which are made from direct photographs of the balloon in midair, show the relative

size and form of the great wings, which are sixteen feet long. In order to utilize the whole power of the wings for progressive movement, it is necessary to rise high in the air, and then the wings can be placed at 90° without any risk of descending. In the latter case, to keep the machine from descending, it is better to open the parachute. On Oct. 8, 1897, some twenty-five ascents were made in an hour and a half. Other ascents were made in the spring and summer of 1898 with good success, the balloon being turned round and round repeatedly. The size of the wings was decreased to 11⅝ feet and the working surface was increased. At a height of 280 feet the balloon was kept immovable and was turned around in the air several times. It was found that the balloon must be inflated with fresh hydrogen every seven or eight days.

While such experiments do not solve the problem of a really practical flying machine, which can go for miles without descending and can be managed at will, still they show that inventors are on the right track, and our Government has done wisely in appropriating $25,000 for experiments on the subject under the direction of competent scientists who will guard against the wasting of money on the exploitation of freak devices.

Freaks of an Artesian Well in Texas.

From the San Antonio Express.

For some time past people who have had occasion to make the closest observations of the flow of the San Antonio River have found that during high winds the flow in the river has decreased, and during an even, warm temperature the flow has been steady.

It has been advanced by some that possibly through caves or other channels atmospheric influences are brought to play on the supply of water which comes to the surface and forms the stream in the bed of the river.

There has just come to light an interesting effect of the atmospheric conditions on the flow of an artesian well. Near the head of the river is a well on the property in charge of Mr. Louis Layer, formerly Ditch Commissioner of San Antonio. This well was shot by Pat O'Hara, the city electrician, and was made to yield a head of 2½ feet of water. Mr. Layer and Mr. O'Hara, who have been watching the flow of this well, have made this interesting discovery: That when a strong, cold, north wind is blowing the flow of water materially diminishes, but on warm, windless days it flows its regular, steady amount.

"I have made a study of wells," said Mr. O'Hara yesterday, "but I have never seen anything like this before. The well has its source in the basin which furnishes all of the San Antonio wells with water, but, having a slightly higher altitude, it has not as large a head of water as the wells in the lower portion of the city. The queer part, however, is the effect of the climatic conditions on the flow of water. There is in that a nut for scientists to crack. I would like to hear some scientific explanation of this phenomenon."

Mother Enlisted to Nurse Her Son; Father Followed as Chaplain.

From the Cincinnati Enquirer.

ARCOLA, Ill., Dec. 26.—When the Arcola company was called to the front a few months ago one of the members of Company A was a promising young man, son of Mr. and Mrs. Skinner of this city. Some time since the son became sick at the Southern camp, and his mother went to see him. She finally enlisted as a nurse in the hospital that she might be near her boy and nurse him through his sickness and give him a mother's care.

Not to be outdone by his wife and son, the Rev. Mr. Skinner applied for a position as Chaplain of the same regiment, and yesterday received word from Gov. Tanner that he had been recommended to the appointment by that Executive. He had resigned his pastorate in the Presbyterian church here, and this morning departed for Savannah, Ga., to take up his new duties in the same regiment with the rest of his family. Few records like this are recorded in history.

MR. MUNSEY AND HIS HOBBY

AN EIGHT-STORY STRUCTURE AS A MEANS OF RECREATION.

New London's Interest in the Mohican Building and the Sudden Changes Made in It—It Has Been a Printing Office, a Department Store and a Hotel.

NEW LONDON, Conn., Dec. 31.—New London takes a peculiar interest in its largest and tallest building. Eight stories high, not counting the roof garden and hall, the building towers above its neighbors like a giant oak in a forest of scrubs. It stands upon the inevitable State street, giving to that thoroughfare an air of stateliness which it did not possess prior to the time when Frank A. Munsey, the magazine publisher, spent $200,000 in completing the first draught of the structure.

The chief peculiarity of the building is that it is apparently finished and yet is in a constant state of incompleteness. It has never been destroyed by fire, smitten by cyclone or shaken by earthquake, yet three times during its existence of three years it has been rebuilt, and the end is not yet. Its reconstruction period seems to be indefinite. When erected in 1895 it was intended by its builder to be a home for the mechanical plant of his magazine. In the deep basement engines and dynamos were set up. The top floor was cut up into office suites and rented to lawyers, architects, and other professional men. The intermediate floors were devoted to a complete printing plant. Mr. Munsey declared that he intended to have the most complete printing office in the world within the walls of the building. The printing plant gave employment to several hundred young New Londoners and several scores of New York pressmen, compositors, stereotypers, binders, and superintendents.

The New York contingent proved the ruin of the plant in New London, for it soon organized a typographical union and introduced metropolitan regulations. For about a year things slid along an even groove, and the people of New London, though they had rendered a verdict that the Munsey building was too big for the town, came to rest in the conclusion that they had a good thing. The New York printers also felt that they had a good thing. During part of each month several hours' overtime was required daily. One day Mr. Munsey learned that the men were being paid for the supper hour on days when they were required to return to work after supper. He protested, and the men went out on strike. The magazine was on the presses, and all the presses were hustling to run off the edition in time for the market. The men walked out at noon one day. The telegraph wires between New York and New London grew hot with messages from Mr. Munsey. Twelve miles from New London is the printing press manufactory where he purchased his presses. By 4 o'clock of that day workmen from this factory had begun taking down the presses. By 6 o'clock some of the machinery was loaded on a Norwich line boat, and at 11 o'clock on the night of the strike a considerable part of the big printing plant was going toward New York.

New London was amazed. The New York printers and pressmen were doubly amazed. This was the first of the lightning movements of the proprietor which have astonished the natives. The entire printing plant was removed to New York and the empty lofts of the building gave forth a hollow echo to the tread of those who were privileged to visit it. The big building was left intact, though a story was circulated at the time—this was in the spring of 1897—that Mr. Munsey had chartered some barges and was going to remove the building also to New York.

For a few weeks the New London people held informal massmeetings on street corners to dispose of the Munsey building for its proprietor. Mr. Munsey himself announced that the ground floor was to let. It was a fine place for a big store, and he proposed to have a store there even if he found it necessary to assist some ambitious young man in a financial way. But the ground floor remained vacant.

One day Mr. Munsey appeared in New London with his architect. It was soon known that he intended turning his big building into a hotel, reserving the ground floor for a store. Men were set at work, and all summer the sound of reconstruction was heard within the brick walls. The immense lofts were criss-crossed with partitions, and the six upper floors were converted into guest chambers. A roof garden and casino hall were built on top, with a magnificent land and marine view thrown in without extra charge. On the second floor the hotel offices, dining room and parlors were fitted up with a magnificence amazing to the New London people. The hotel was named the Mohican, and in the late summer of 1897 was thrown open to the public. A manager from a New York hotel was put in charge, buttoned bellboys and porters were to be seen inside and out, and guests came and went.

Failing to rent his ground floor, Mr. Munsey started a store himself. It was a department store, where presumably one could purchase anything from a shoestring to a furnished flat. Then the local merchants began to suspect that Mr. Munsey was not such a good thing for the town after all. There were cut-rate wars, much bickering and all sorts of predictions that the new department store would go the way of the printing presses.

Meantime the hotel had other eruptions. It became a belief in the town that every time Mr. Munsey came up from New York he brought his architect along and ordered some extensive alterations. When he first started the hotel he had the elevator torn out of the corner of the building and reset in the centre, an open court being cut all the way through the structure from top to bottom to admit light to the hotel rooms. In the spring of the present year he announced that he was going to enlarge his store and needed the second floor for that purpose. Accordingly he put his architect at work. The hotel office, dining room and parlors were ripped out of the second floor and transferred to the eighth, at the top of the building. This work required several months. The floor of the office, more than a hundred feet square, was laid with minute tiling by Italian workmen brought over for the job. No expense was spared in rendering the office as attractive and commodious as possible. Few hotels in the large cities had more elaborate fittings in corridor and café. Owing to the removal of the hotel office to the top floor it was decided that two elevators were required in place of one; so once more the building was placed in a state of change and two elevators were put in. At the same time all the guest chambers in the house were papered in gorgeous tints and in most of them bathrooms were built.

New London began to settle down to the belief that the Munsey building was finally completed, though there were those who continued to ask what the owner was going to do next. A number of guests took rooms at the Mohican for the winter and settled down to the solid comfort of the private baths, choice of elevators and wide expanse of Italian tiling. On Dec. 21 Mr. Munsey made his appearance at the hotel with his architect. Within an hour after his arrival slips were sent from the desk to each guest notifying the Mohican dwellers to vacate their apartments by Dec. 31, as the hotel was to be abolished. With ten days' notice the guests began packing up and looking about for other quarters.

It is now the intention of Mr. Munsey to rip out the entire hotel part of his establishment, including the splendid office floor and the private baths, and turn the whole into the home of some industry which thus far the New London public has not divined. The prevailing impression, according to one citizen, is that the six hotel floors are to be turned into salesrooms for the disposal of the bedroom furniture used in the Mohican. Another theory is that the department store is to be enlarged.

Mr. Munsey once explained to a New London acquaintance why he took so much interest in the Mohican building.

"All men of wealth," he said, "have some particular hobby, some means of pastime or recreation. Some spend their surplus money on yachts, others on fast horses. Now, I don't care for yachting or for racing. I must have a hobby, and this little affair up here fills the bill. I really enjoy it."

The Old Man's Wonderful Cure.

From the Cleveland Plain Dealer.

A good story is being circulated among the medical men of Cleveland, a story which was started by the victim himself. He is a physician of considerable repute, and some time ago was called to attend a gentleman of advanced years, who was suffering from a slight complication of disorders. The doctor went to work with a will, and presently had the patient on the road to recovery. In fact, two weeks from the time he took the case he had him cured.

As he left the house, after announcing that further visits would be unnecessary, the daughter of the restored man accompanied him to the door.

"Doctor," she said in somewhat tremulous tones, "I want to tell you"——

The doctor, who supposed she was anxious to express her gratitude for his skilled attention, waved her thanks aside.

"Don't mention it, madam," he affably said; "we always try to do our duty."

"But, doctor," she persisted, "it is something that will interest you. I feel that"——

"Say no more, madam," cried the doctor, much moved by the woman's agitation.

"It is something I must tell you, doctor," she continued. "Please listen."

The doctor halted with his hand on the knob.

"Yesterday," said the woman, "I was down town and met Mrs. Pugsley, the Christian Scientist, and she told me she had been giving father 'absent treatments' for two weeks. Isn't it just too wonderful?"

"Good morning," said the doctor, dryly.